GOV DOC
BRA
177

Property of
BOSTON REDEVELOPMENT AUTHORITY
Library

NOISE IN DORCHESTER

A limited study of certain recreational
and potential housing sites, in
response to a request by the
Boston Redevelopment Authority

Dorchester
B65A.N

[illegible]

Property of
BOSTON REDEVELOPMENT AUTHORITY
Library

Property of
BOSTON REDEVELOPMENT AUTHORITY
Library

BOSTON
PUBLIC
LIBRARY

NOISE IN DORCHESTER

A limited study of certain recreational
and potential housing sites, in
response to a request by the
Boston Redevelopment Authority

BOSTON AIR POLLUTION CONTROL COMMISSION

Donald Squires
Chief, Noise Abatement Section
David Standley
Executive Director

1973

Property of
BOSTON REDEVELOPMENT AUTHORITY
Library

A preliminary noise survey with recommendations for further action has been made at noise locations in Dorchester in answer to a request from the Boston Redevelopment Authority. The sites were to be evaluated with respect to relevent standards of federal agencies to which the BRA might apply for funds to develop these sites. Of the nine sites, six are proposed housing sites and the other three are for recreational sites. The Department of Housing and Urban Development (HUD) has set criteria to determine the acceptability of the noise environment of proposed housing sites. The proposed housing sites have been evaluated with respect to these guidelines. HUD has no funds available for outdoor recreational sites and their guidelines were drawn for acceptable noise levels for sleeping. The Federal Highway Administration is the only agency that we know of that has guidelines (for acceptable noise levels) that are applicable to recreational sites.

A preliminary evaluation of these sites has been made with respect to these guidelines. The Bureau of Outdoor Recreation is the agency to which application will most likely be made for funds. They have no criteria for acceptable noise levels.

Evaluation of Residential Sites

HUD has provided two methods to evaluate the acceptability of a site for noise. The first is to use the "Noise Assessment Guidelines". By means of a series of graphs and tables a

preliminary judgement of the acceptability of a site cn be made with knowledge of traffic counts and the number of trains passing a site. These guidelines are rather conservative for determining the acceptability of a site. HUD Guidelines 1390.2 can be used instead of the "Noise Assessment Guidelines" to determine the acceptability of a site for noise. A 24-hour measurement is required of the noise at a site for this method. For sites that were not found acceptable using the Noise Assessment Guidelines, an estimate has been made of how the site would fare under the 1390.2 Guidelines. This Commission does not have the equipment that would be required to do a 24-hour statistical analysis of noise levels at this time. The Department of Transportation Systems Center has indicated that at a some further time it may be possible to arrange to have some of their equipment made available to us to perform a statistical analysis of data that we gather, which would enable us to evaluate 2 or 3 of the sites according to the requirements of HUD Circular 1390.2.

Recommendations have been made for noise abatement measures for sites where it appears that such measures will be required. No attempt has been made to estimate the cost of these measures.

Both the Noise Assessment Guidelines and HUD Circular 1390.2 stale with respect to aircraft noise that if a site lies

within the NEF 30 contour (and outside the NEF 40 contour)* it will be classified "normally unacceptable". This would require that noise abatement measures be taken. By means of a verbal agreement between HUD's central and regional offices this has been changed. Areas that lie between the NEF 30 and 35 contours are said to be "normally acceptable" and those between the NEF 35 and 40 contours "normally unacceptable". Aircraft noise has been evaluated according to this verbal agreement.*

An evaluation of each proposed residential site using the Noise Assessment Guidelines is shown in Appendix A.

It's the belief of this Commission that the NEF contours that are being used by HUD are inaccurate and should be redrawn. They are based on what we think might be inaccurate runway utilization percentages and there are more recent estimates of the number of operations available. It is very possible that this could result in the shifting of the contours so that greater areas of Dorchester fall within the NEF 30 and 35 contours.

An important point concerning the use of barriers should be made. The barriers would have to be constructed high enough

*The NEF contours are a method to evaluate impact of aircraft noise.

so that the top floor of the proposed housing is not exposed to excessive noise. This would require that a higher barrier than if the builder were only concerned with noise at ground level. Due to the fact that we haven't been provided with information on the height of the proposed buildings, no attempt has been made to calculate the required height of any barriers.

Bayside Mall

This site was found to be acceptable using the "Noise Assessment Guidelines." An unknown is traffic that will be flowing into and out of the new University of Massachusetts campus. If this traffic were sufficiently heavy and the road was close enough to the housing site it could present a problem.

University of Massachusetts

There is no problem presently from traffic noise or railway noise. There is a problem though from aircraft noise. The area lies inside the NEF 35 contour. This places the area in a "normally unacceptable" category. This means that some form of noise abatement will be required. For aircraft noise this would involve treating the building (See Appendix B).

Conley and Norwood

Using the "Noise Assessment Guidelines" this area is normally unacceptable as a result of traffic and railway noise. The

area lies between the NEF 30 and 35 contours so that it is normally acceptable for aircraft noise. From preliminary measurements of the noise at the site it appears that a 24 hour measurement of the noise would place the area in a "normally unacceptable" category.

There is a noise problem from the MBTA, Mourissey Blvd. and the Southeast Expressway. Probably the only action that could reasonably be taken is to insulate the building against noise. A barrier would be difficult at this point. A barrier would be required along Morrissey Blvd. and another along the MBTA, and a change in the underpass where Conley St. goes under the Penn Central Railroad and MBTA tracks would be needed. Approximately a 10 dB reduction would be required.

Neponset Dump

According to the "Noise Assessment Guidelines" this site is "normally unacceptable" for traffic noise. For aircraft noise the site will be "normally acceptable" since it lies between the NEF 30 and 35 contours. Preliminary measurements indicate that the site would probably be classified as "normally unacceptable" if a 24 hour measurement were taken.

The principal source of noise is the Southeast Expressway. Treatment to abate the noise could take two forms. One method would be to erect a barrier along the Expressway. A second method would be to insulate the building.

We estimate that approximately a 5dB reduction is required in the noise level to change the classification of the site to "normally acceptable."

Butler and Huntoon

This site has no problem with traffic ("normally acceptable") and aircraft noise (outside the NEF 30 contour) according to the "Noise Assessment Guidelines". But it will be classified as "normally unacceptable" because of train noise according to these guidelines. There are 168 trains (trolleys between Mattapan and Ashmont) a day along this line. If a 24 hour measurement was taken, the site would probably be classified as "normally acceptable".

Recreational Sites

The three recreational sites have been evaluated with respect to the requirements of the Federal Highway Administration. This requires that the L_{10}* of a recreational site not exceed 70 dB(A). All three of the sites (Tenean Beach, Judge Troy's Land and McConnel Park) would need a reduction in the noise level to meet this criteria. A reduction of the order of 4 to 6 decibels will be required.

The Southeast Expressway is the predominate source of noise for all three of these sites. A barrier would be the easiest solution to noise problem on all three sites.

*L_{10} - This is the noise level that is exceeded 10% of the time.

The Bureau of Outdoor Recreation, to whom the BRA will probably be applying for funds doesn't have any noise standards.

Appendix A

WORKSHEET A – Site Evaluation

Site Location: Butler and Huntoon

Program __________

Project Name __________

Locality Dorchester, Mass.

File Number __________

Sponsor's Name __________

Street Address __________

City, State __________

Phone __________

Least Favorable Category found for

1. Aircraft Noise Normally acceptable
2. Roadway Noise Normally acceptable
3. Railway Noise Normally unacceptable
4. Walk-Away Test (if conducted) __________

Final Site Evaluation – Least Favorable Category Above:

Normally unacceptable

Clip this worksheet to the top of a package containing Worksheets B – E and Figs. 1-4.

Date: __________

Signature: __________

WORKSHEET B – Aircraft Noise

List all airports within 15 miles of the site:	Acceptability Category:
1. Logan	normally acceptable
2.	
3.	

Necessary Information:

	Airport #1	Airport #2	Airport #3
1. Are NEF or CNR contours available? (yes/no)	yes		
2. Number of nighttime jet operations:			
3. Number of daytime jet operations:			
4. Any supersonic jet operations? (yes/no)	no		

site is outside the NEF - 30 (CNR-100)
contour at a distance less than distance between the NEF-30
(CNR-100, CNR-

Date: __________

Signature: __________

Worksheet C – Roadway Noise

List all major roads within 1000 ft of the site:	Acceptability Category: Automobiles	Trucks
1. Adams Street	clearly to normally acceptable	restricted
2.		
3.		
4.		

Necessary Information:

	Road #1	Road #2	Road #3	Road #4
1. The distance in feet from the site to the centerline of				
a. nearest lane: approx.	200			
b. farthest lane: approx.	250			
2. The total number of automobiles per hour in both directions:	unknown need count			
3. The number of trucks per hour				
a. uphill direction:	N			
b. downhill direction:	O			
c. both directions:	N E			
4. Effective distance from site to road:	225'			
Adjustments for Automobile Traffic				
5. Stop-and-go:				
6. Mean speed:	35			
Adjustments for Truck Traffic				
7. Road gradient:				
8. Stop-and-go:				
9. Mean speed:				
Barrier Adjustment				
10. Distance from site to barrier:	N/A			
11. Distance from center of road to barrier:	N/A			
12. Effective elevation of road:	35'			
13. Effective elevation of site: ground level	14'			
14. Effective elevation of barrier:				
15. Difference in elevation between site and road:				

height of building not known

(Over)

WORKSHEET D – Railway Noise

Name all railways within 3000 ft of the site:	Acceptability Category:
MBTA	normally unacceptable

Necessary information:

		Railway #1	Railway #2	Railway #3
Distance in feet from the site to the railway right-of-way:	approx.	101'		
Type of exposure (line-of-sight or shielded):		LOS		
Number of nighttime operations:		greater than 10		

Date: ____________________

Signature: ____________________

WORKSHEET A – Site Evaluation

Site Location: Bayside Mall (area)

Program __________
Project Name __________ ____
Locality __________
Case Number __________

Sponsor's Name __________
Street Address __________
City, State __________
Phone __________

Least Favorable Category found for

A. Aircraft Noise normally acceptable
B. Roadway Noise clearly acceptable
C. Railway Noise clearly acceptable
D. Walk-Away Test (if conducted) __________

Final Site Evaluation – Least Favorable Category Above:

normally acceptable

Clip this worksheet to the top of a package containing Worksheets B – E and Figs. 1-4.

Date: __________

Signature: __________

WORKSHEET B – Aircraft Noise

List all airports within 15 miles of the site:	Acceptability Category:
1. Logan	acceptable
2.	
3.	

Necessary information:

	Airport #1	Airport #2	Airport #3
1. Are NEF or CNR contours available? (yes/no)	yes		
2. Number of nighttime jet operations:			
3. Number of daytime jet operations:			
4. Any supersonic jet operations? (yes/no)			

Date: ____________________

Signature: ____________________

Worksheet A — Roadway Noise

List all major roads within 1000 ft of the site.

	Acceptability Category: Automobiles	Trucks
none	clearly acceptable	

Necessary Information:

	Road #1	Road #2	Road #3	Road #4
The distance in feet from the site to the center line of				
the nearest lane:				
the farthest lane:				
Average number of automobiles per hour in both directions:				
Average number of trucks per hour				
in uphill direction:				
in downhill direction:				
in both directions:				
Line-of-sight distance from site to road:				
Adjustments for Automobile Traffic				
Stop-and-go:				
Average speed:				
Adjustments for Truck Traffic				
7. Road gradient:				
8. Stop-and-go:				
9. Average speed:				
Barrier Adjustment				
10. Distance from site to barrier:				
11. Distance from center of road to barrier:				
12. Effective elevation of road:				
13. Effective elevation of site: ________				
14. Effective elevation of barrier:				
15. Difference in elevation between site and road:				

(Over)

[illegible] – Railway Noise

[illegible] within 3000 ft of the site:	Acceptability Category:
none	clearly acceptable

[illegible] Information:

	Railway #1	Railway #2	Railway #3
[illegible] from the site to the [illegible]-of-way:			
[illegible] (line-of-sight or [illegible]):			
[illegible] nighttime operations:			

Date: ______________________

Signature: ______________________

ORKSHEET A – Site Evaluation

te Location: University of Mass

rogram

oject Name

cality: Columbia Point, Boston

e Number

onsor's Name

reet Address

ty, State

hone

ast Favorable Category found for

ircraft Noise: normally unacceptable

oadway Noise: clearly acceptable

ailway Noise: clearly acceptable

Walk-Away Test (if conducted)

nal Site Evaluation – Least Favorable Category Above:

normally unacceptable

p this worksheet to the top of a package ontaining Worksheets B – E and Figs. 1-4.

Date:

Signature:

WORKSHEET B – Aircraft Noise

ist all airports within 15 miles of the site:	Acceptability Category:
Logan	normally unacceptable

Necessary Information:

	Airport #1	Airport #2	Airport #3
. Are NEF or CNR contours available? (yes/no)	yes		
Number of nighttime jet operations:			
3. Number of daytime jet operations:			
. Any supersonic jet operations? (yes/no)			

Date: ________________

Signature: ________________

rksheet C – Roadway Noise

'st all major roads within 1000 ft of the
e:

	Acceptability Category: Automobiles	Acceptability Category: Trucks
none		

ecessary Information:

	Road #1	Road #2	Road #3	Road #4
1. The distance in feet from the site to the centerline of				
a. nearest lane:				
b. farthest lane:				
The total number of automobiles per hour in both directions:				
The number of trucks per hour				
a. uphill direction:				
b. downhill direction:				
c. both directions:				
4. Effective distance from site to road:				
djustments for Automobile Traffic				
5. Stop-and-go:				
Mean speed:				
Adjustments for Truck Traffic				
Road gradient:				
8. Stop-and-go:				
Mean speed:				
Barrier Adjustment				
Distance from site to barrier:				
11. Distance from center of road to barrier:				
Effective elevation of road:				
13. Effective elevation of site: ______				
Effective elevation of barrier:				
15. Difference in elevation between site and road:				

(Over)

ORKSHEET D – Railway Noise

ist all railways within 3000 ft of the site:	Acceptability Category:
. none	clearly acceptable
.	
.	

essary Information:

	Railway #1	Railway #2	Railway #3
. Distance in feet from the site to the railway right-of-way:			
. Type of exposure (line-of-sight or shielded):			
. Number of nighttime operations:			

Date: ____________________

Signature: ____________________

WORKSHEET A – Site Evaluation

Site Location: Conley and Norwood

Program ______

Project Name ______

Locality ______

File Number ______

ponsor's Name ______

Street Address ______

City, State ______

Phone ______

Least Favorable Category found for

1. Aircraft Noise normally unacceptable
2. Roadway Noise normally unacceptable
3. Railway Noise normally unacceptable
4. Walk-Away Test ______
(if conducted)

Final Site Evaluation – Least Favorable Category Above:

normally unacceptable

Clip this worksheet to the top of a package containing Worksheets B – E and Figs. 1-4.

Date: ______

Signature: ______

WORKSHEET B – Aircraft Noise

List all airports within 15 miles of the site:	Acceptability Category:
Logan Airport	normally unacceptable

Necessary information:

	Airport #1	Airport #2	Airport #3
1. Are NEF or CNR contours available? (yes/no)	yes		
2. Number of nighttime jet operations:			
3. Number of daytime jet operations:			
4. Any supersonic jet operations? (yes/no)			

between the NEF 30 and NEF 40 (CNR-100, CNR-115) contours

Date: ____________________

Signature: ____________________

Worksheet C — Roadway Noise

List all major roads within 1000 ft of the site:	Acceptability Category: Automobiles	Trucks
1. Southeast Expressway	normally unacceptable	unknown
Morrissey Blvd.	normally unacceptable	excluded. Clearly acceptable
3.		

Necessary Information:

	Road #1	Road #2	Road #3	Road #4
1. The distance in feet from the site to the centerline of				
a. nearest lane: approx.	600	100		
b. farthest lane:	700	200'		
The total number of automobiles per hour in both directions:	9,375(pk) adj.	822(pk)adj.		
3. The number of trucks per hour				
a. uphill direction:				
b. downhill direction:				
c. both directions:	(peak) adj.			
Effective distance from site to road:	650'	150'		
Adjustments for Automobile Traffic				
Stop-and-go:				
6. Mean speed:	55	35		
Adjustments for Truck Traffic				
Road gradient:				
Stop-and-go:				
9. Mean speed:	55	excluded		
Barrier Adjustment				
Distance from site to barrier:				
Distance from center of road to barrier:				
Effective elevation of road:	35	11		
13. Effective elevation of site: 11 + H unkown	11 + H	11 + H		
Effective elevation of barrier:				
15. Difference in elevation between site and road:				

(Over)

WORKSHEET D – Railway Noise

List all railways within 3000 ft of the site:	Acceptability Category:
1. MBTA (Redline)	normally unacceptable
2.	
3.	

Necessary Information:

	Railway #1	Railway #2	Railway #3
1. Distance in feet from the site to the railway right-of-way:	200'		
2. Type of exposure (line-of-sight or shielded):			
3. Number of nighttime operations:			

between 101' and 600' normally unacceptable

Elevation 28 feet

Date: __________

Signature: __________

WORKSHEET A – Site Evaluation

Site Location: Kelleys Property

Program
Project Name
Locality
File Number

Sponsor's Name
Street Address
City, State
Phone

Least Favorable Category found for

1. Aircraft Noise normally unacceptable
2. Roadway Noise normally acceptable
3. Railway Noise normally unacceptable
4. Walk-Away Test (if conducted)

Final Site Evaluation – Least Favorable Category Above:

normally unacceptable

Clip this worksheet to the top of a package containing Worksheets B – E and Figs. 1-4.

Date:

Signature:

WORKSHEET B – Aircraft Noise

List all airports within 15 miles of the site:	Acceptability Category:
Logan Airport	normally unacceptable

Necessary Information:

	Airport #1	Airport #2	Airport #3
1. Are NEF or CNR contours available? (yes/no)	x		
Number of nighttime jet operations:			
3. Number of daytime jet operations:			
Any supersonic jet operations? (yes/no)			

Date: ____________________

Signature: ____________________

Worksheet C – Roadway Noise

List all major roads within 1000 ft of the site:	Acceptability Category: Automobiles	Trucks
Neponset Ave. Bridge	normally acceptable	
2		
4.		

Necessary Information:

	Road #1	Road #2	Road #3	Road #4
The distance in feet from the site to the centerline of				
a. nearest lane:	900'			
b. farthest lane:	1000'			
2. The total number of automobiles per hour in both directions:	60,000/day			
3. The number of trucks per hour	(unknown)			
a. uphill direction:				
b. downhill direction:				
c. both directions:				
Effective distance from site to road:	~~950~~			
Adjustments for Automobile Traffic				
Stop-and-go:				
6. Mean speed:	35			
Adjustments for Truck Traffic				
7. Road gradient:				
Stop-and-go:				
9. Mean speed:	~~35~~			
Barrier Adjustment				
10. Distance from site to barrier:				
1. Distance from center of road to barrier:				
12. Effective elevation of road:	24'			
Effective elevation of site:				
14. Effective elevation of barrier:				
Difference in elevation between site and road:				

(Over)

KSHEET D – Railway Noise

ist all railways within 3000 ft of the site:	Acceptability Category:
MBTA (red line)	normally unacceptable

ssary Information:

	Railway #1	Railway #2	Railway #3
Distance in feet from the site to the railway right-of-way:	approx. 300'		
Type of exposure (line-of-sight or shielded):	L.O.S.		
Number of nighttime operations:	greater than 10		

Date:

Signature:

WORKSHEET A – Site Evaluation

Site Location: Neponset Dump and Drive In area

Program

Project Name

Locality

File Number

Sponsor's Name

Street Address

City, State

Phone

Least Favorable Category found for

1. Aircraft Noise normally unacceptable
2. Roadway Noise normally unacceptable
3. Railway Noise clearly acceptable
4. Walk-Away Test (if conducted)

Final Site Evaluation – Least Favorable Category Above:

normally unacceptable

Clip this worksheet to the top of a package containing Worksheets B – E and Figs. 1-4.

Date:

Signature:

WORKSHEET B – Aircraft Noise

List all airports within 15 miles of the site:	Acceptability Category:
1. Logan Airport	normally unacceptable
2.	
3.	

Necessary Information:

	Airport #1	Airport #2	Airport #3
1. Are NEF or CNR contours available? (yes/no)	yes		
2. Number of nighttime jet operations:			
3. Number of daytime jet operations:			
4. Any supersonic jet operations? (yes/no)	none		

Between the NEF 30 and NEF-40 (CNR-100, CNR-115) contours.

Date:

Signature:

Worksheet C – Roadway Noise

List all major roads within 1000 ft of the ite:	Acceptability Category: Automobiles	Trucks
1. Southeast Expressway	normally unacceptable	unknown
. Neponset Bridge	normally acceptable	
3.		
.		

ecessary Information:	Road #1	Road #2	Road #3	Road #4
1. The distance in feet from the site to the centerline of				
a. nearest lane:				
b. farthest lane:				
. The total number of automobiles per hour in both directions:		60,000 day		
3. The number of trucks per hour				
a. uphill direction:				
b. downhill direction:				
c. both directions:				
. Effective distance from site to road:	500'	950'		
djustments for Automobile Traffic				
. Stop-and-go:				
6. Mean speed:	55	35		
Adjustments for Truck Traffic				
. Road gradient:				
. Stop-and-go:				
9. Mean speed:	55	35		
Barrier Adjustment				
10. Distance from site to barrier:				
. Distance from center of road to barrier:				
. Effective elevation of road:	38			
13. Effective elevation of site: 25 unknown				
. Effective elevation of barrier:				
15. Difference in elevation between site and road:				

(Over)

WORKSHEET D – Railway Noise

List all railways within 3000 ft of the site:	Acceptability Category:
1. Penn Central	clearly acceptable
2.	
3.	

Necessary information:

	Railway #1	Railway #2	Railway #3
1. Distance in feet from the site to the railway right-of-way:	300'		
2. Type of exposure (line-of-sight or shielded):			
3. Number of nighttime operations:	none		

Operates 3 days a week, one car outbound morning, one car back afternoon

Date: ____________________

Signature: ____________________

Appendix B

The NEF contours that HUD uses to determine the acceptability of a site were drawn by Bolt, Beranek and Newman. They are drawn for 1975 based on the projected number of operations and runway utilization shown on pages (B2-B5).

An excerpt from a report done by Bolt, Beranek and Newman for the Department of Public Facilities is included (Pg. BG). The report discussed methods of abating noise in the East Boston schools.

TABLE 13-I (CONT.)

NUMBER OF AIRCRAFT OPERATIONS PER DAY
LOGAN INTERNATIONAL AIRPORT, BOSTON, MASSACHUSETTS

1975 OPERATIONS

AIRCRAFT CLASSIFICATION	DAY/ NIGHT	LANDINGS	TAKEOFFS TRIP LENGTH IN NAUTICAL MILES 0- 500	500- 1000	1000- 1500	1500- 2500	2500- 3500	3500- 4500	4
4-ENGINE TURBOJET	D	25.068	18.493	5.516	0.959	0.0	0.0	0.0	0.
	N	8.356	6.986	0.822	0.548	0.0	0.0	0.0	0.
4-ENGINE TURBOFAN (STANDARD)	D	31.781	13.013	10.137	1.233	0.685	5.890	0.822	0
	N	9.041	4.931	2.739	0.548	0.0	0.822	0.0	0
4-ENGINE TURBOFAN (STRETCHED)	D	7.550	0.755	1.659	0.0	0.0	5.205	0.0	0
	N	3.635	0.137	0.411	0.0	0.0	3.150	0.0	0
3-ENGINE TURBOFAN (STANDARD)	D	92.325	90.548	1.781	0.0	0.0	0.0	0.0	0
	N	15.548	15.274	0.274	0.0	0.0	0.0	0.0	0
3-ENGINE TURBOFAN (STRETCHED)	D	57.308	51.918	5.890	0.0	0.0	0.0	0.0	0
	N	8.042	7.397	0.685	0.0	0.0	0.0	0.0	0
2-ENGINE TURBOFAN	D	92.329	90.548	1.781	0.0	0.0	0.0	0.0	0
	N	15.548	15.274	0.274	0.0	0.0	0.0	0.0	0
'NEW TECHNOLOGY' 4-ENGINE TURBOFAN	D	4.931	2.055	2.329	0.548	0.0	0.0	0.0	0
	N	1.918	0.685	0.411	0.822	0.0	0.0	0.0	0
'NEW TECHNOLOGY' 3-ENGINE TURBOFAN	D	15.711	8.142	6.529	1.233	0.0	0.0	0.0	0
	N	4.794	2.739	1.644	0.411	0.0	0.0	0.0	0
U.S. SST	D	6.712	0.0	0.0	0.685	5.027	0.0	0.0	0
	N	1.644	0.0	0.0	0.959	0.685	0.0	0.0	0
BUSINESS JET	D	4.521	4.247	0.274	0.0	0.0	0.0	0.0	0
	N	0.274	0.274	0.0	0.0	0.0	0.0	0.0	0

TABLE 13-II (Con't)

1975 OPERATIONS

Flight Path	4-Engine Jet		2- and 3-Engine Jet		Prop Over 12,500 LB.	
	T/O	L	T/O	L	T/O	L
[illegible]	0	0	0	2.0	-	-
[illegible]	25.0	32.0	15.0	27.0	-	-
[illegible]	6.0	23.0	4.0	17.0	-	-
[illegible]	0	5.0	0	5.0	-	-
[illegible]	6.0	0	28.0	0	-	-
[illegible]	12.0	0	15.0	9.0	-	-
[illegible]	0	0	3.0	8.0	-	-
[illegible]	25.0	3.0	15.0	2.0	-	-
[illegible]	15.0	5.0	10.0	4.0	-	-
[illegible]	11.0	11.0	6.0	8.0	-	-
[illegible]	5.0	21.0	3.0	14.0	-	-
[illegible]	35.0	7.0	25.0	5.0	-	-
[illegible]	0	1.0	0	1.0	-	-

B3

TABLE 13-I (CONT.)

AIRCRAFT CLASSIFICATION	DAY/ NIGHT	LANDINGS	TAKEOFFS					
			TRIP LENGTH IN NAUTICAL MILES					
			0- 500	500- 1000	1000- 1500	1500- 2500	2500- 3500	3500- 4500
2-ENGINE PROPELLER	D	43.151	32.603	10.548	0.0	0.0	0.0	0.0
	N	5.479	5.342	0.137	0.0	0.0	0.0	0.0

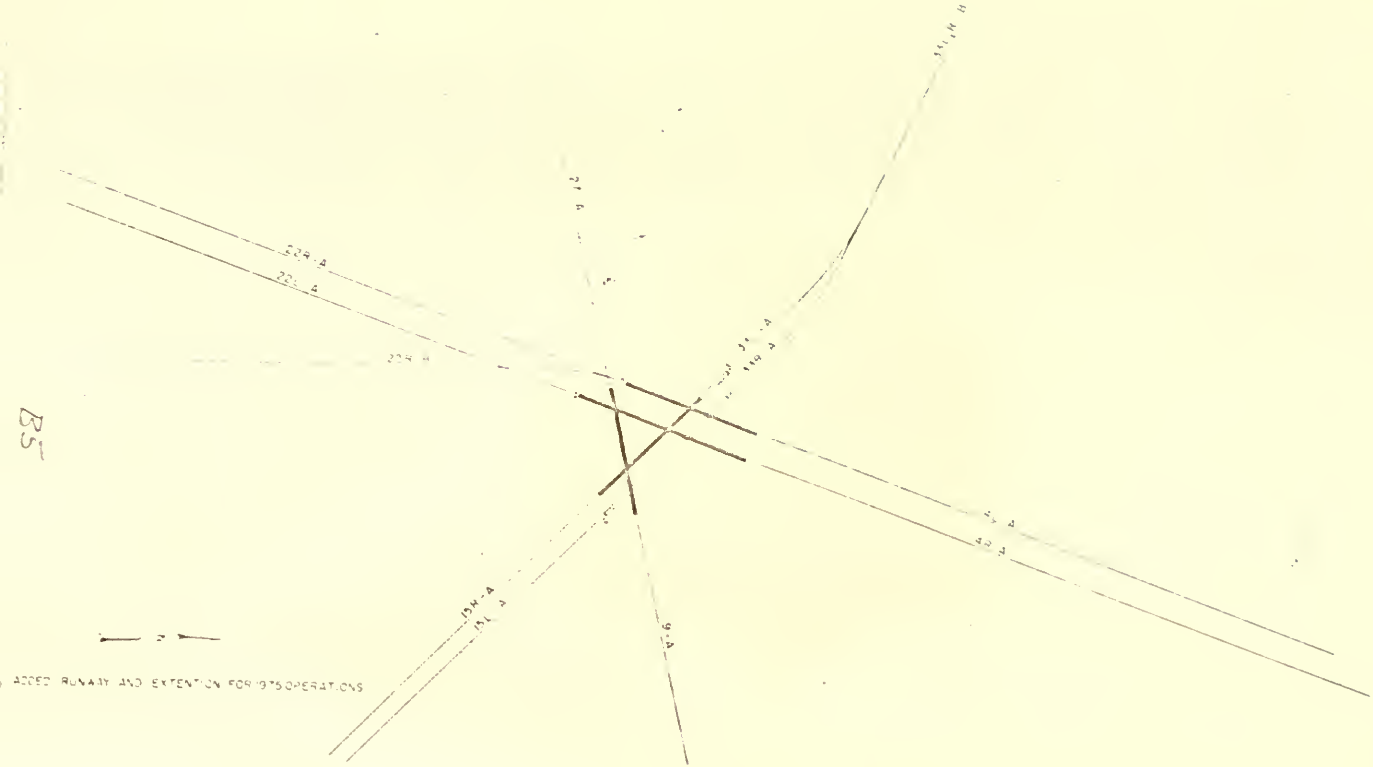

FIGURE 13-D. MAJOR FLIGHT PATHS FOR LOGAN INTERNATIONAL AIRPORT, BOSTON, MASSACHUSETTS

B5

C. Noise Exposure Equivalent to that at Alighieri School

Critical spaces should be located at interior positions, but may have exterior walls with some windows. The windows should be double-glazed, however.

Small lecture classrooms may have windows of plate glass provided the window area is about 10 percent. Larger window areas require laminated glass or double glazing.

Laboratories may have about 50 percent windows of plate glass. Circulation spaces may have full windows of plate glass.

D. Other Considerations

In most cases, the roof of a building will present unique problems. Generally, it will have a weight limitation. If we assume that the maximum thickness of a flat concrete roof is 6 inches, then an interior ceiling will be required for noise control in the two noisier classifications and in the third classification for critical spaces. The interior ceiling can be plaster suspended from the roof. The thickness of the plaster will vary from 1/2-inch to 2 or 4 inches and the air space from 6 inches to 36 inches, depending on the requirements of the space. The larger air space and thicker plaster provide the greater noise reduction.

We observed that at many of the schools, the noise from local traffic is a serious problem. In some cases, it is possible that traffic noise controls over the aircraft noise. Where this is so, noise control should be designed to accomodate this problem and not be limited to controlling the aircraft noise alone.

It is apparent from the above description of the required noise control treatment that full air-conditioning is required in all cases. We also imply that the steady background noise should be controlled to meet the criteria specified earlier. In critical spaces, it is equally important that the background noise accomplish some masking of intrusive noises. It is possible that electronic background noise generation may be required in areas where it is difficult to achieve masking with the air-handling system.

Room acoustics and interior wall construction are also important in achieveing the design goals, and should receive proper attention. The requirements on exterior wall construction can become impossibly severe if the acoustic properties of a room do not enhance the noise reduction. Also, the isolation provided by a buffer zone, such as a corridor, can be violated by 'leaky' doors or interior walls.

Appendix C

Barriers and resurfacing of the pavement are two techniques that can be used to alleviate traffic noise. Excerpts from several documents are included to provide some measure of help in determining the effectiveness of these two techniques.

The information available on the amount of noise reduction obtainable by resurfing is inconclusive. Probably not more than a 2 to 3 dB reduction should be considered likely, and then only for vehicle speeds greater than 50 mph. The noise from some types of truck tires is increased by a smooth sealed surface.

BOSTON PUBLIC LIBRARY
3 9999 06352 245 0

DORCHESTER B65A.N c.1
Boston Air Pollution Control
Commission.
Noise in Dorchester.

DATE	ISSUED TO
	Cindy Hall [illegible]

.1
Com.